AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1 – 120 (cancelled)

121. (new) A method for forming chains of edgelets, the edgelets being disposed within a two-dimensional array, each edgelet having a position and a direction, the method comprising:

for each edgelet at a position in the two-dimensional array, examining neighboring positions so as to determine which neighboring positions contain a neighboring edgelet which can be connected to the edgelet at the position, the examining occurring in two phases, each phase including examination of an equal number of different neighboring positions.

122. (new) The method of claim 121, wherein each phase includes examination of four neighboring positions.

123. (new) The method of claim 121, wherein each phase includes examination of the different neighboring positions in a particular order.

124. (new) The method of claim 123, wherein the particular order is dependent upon the direction of the edgelet at the position in the two-dimensional array.

125. (new) The method of claim 124, wherein the direction of the edgelet falls within east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is: north, west, north-west, north-east.

126. (new) The method of claim 124, wherein the direction of the edgelet falls within north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is: west, north, north-west, south-west.

127. (new) The method of claim 124, wherein the direction of the edgelet falls within east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is: south, east, south-east, south-west.

128. (new) The method of claim 124, wherein the direction of the edgelet falls within north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is: east, south, south-east, north-east.

129. (new) The method of claim 125, wherein the first neighboring edgelet found is deemed to be the left neighbor.

130. (new) The method of claim 126, wherein the first neighboring edgelet found is deemed to be the right neighbor.

131. (new) The method of claim 127, wherein the first neighboring edgelet found is deemed to be the left neighbor.

132. (new) The method of claim 128, wherein the first neighboring edgelet found is deemed to be the right neighbor.

133. (new) The method of claim 124, wherein the direction of the edgelet falls within a rotation of east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is the rotation of: north, west, north-west, north-east.

134. (new) The method of claim 124, wherein the direction of the edgelet falls within a rotation of north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the first phase is the rotation of: west, north, north-west, south-west.

135. (new) The method of claim 124, wherein the direction of the edgelet falls within a rotation of east and north-east directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is the rotation of: south, east, south-east, south-west.

136. (new) The method of claim 124, wherein the direction of the edgelet falls within a rotation of north-east and north directions from the position of the edgelet in the two-dimensional array, and consequently the particular order of examination of the different neighboring positions in the second phase is the rotation of: east, south, south-east, north-east.

137. (new) The method of claim 133, wherein the first neighboring edgelet found is deemed to be the left neighbor.

138. (new) The method of claim 134, wherein the first neighboring edgelet found is deemed to be the right neighbor.

139. (new) The method of claim 135, wherein the first neighboring edgelet found is deemed to be the left neighbor.

140. (new) The method of claim 136, wherein the first neighboring edgelet found is deemed to be the right neighbor.

141. (new) The method of claim 123, wherein each phase includes examination of the different neighboring positions in a particular order that favors orthogonal neighbors over diagonal neighbors.

142. (new) The method of claim 123, wherein each phase includes examination of the different neighboring positions in a particular order so as to provide a chain having a stair-step pattern for boundaries not aligned with grid axes of the two-dimensional array.

143. (new) The method of claim 121, further comprising:

connecting each edgelet at a position in the two-dimensional array with its right neighboring edgelet and its left neighboring edgelet; and

performing a consistency check for each edgelet in a chain so-formed.

144. (new) The method of claim 143, wherein performing a consistency check includes:

verifying that the right neighbor of an edgelet's left neighbor is the edgelet itself.

145. (new) The method of claim 143, wherein performing a consistency check includes:

verifying that the left neighbor of an edgelet's right neighbor is the edgelet itself.

146. (new) The method of claim 144, wherein when the consistency check fails, each link is replaced by a null link.

147. (new) The method of claim 145, wherein when the consistency check fails, each link is replaced by a null link.

148. (new) The method of claim 121, wherein the edgelets are disposed such that only one edgelet is disposed within each element of the two-dimensional array.

149. (new) The method of claim 121, wherein the edgelets are disposed such that more than one edgelet is disposed within some elements of the two-dimensional array.

150. (new) The method of claim 149, wherein one edgelet is selected within each element of the two-dimensional array having more than one edgelet.

151. (new) The method of claim 121, wherein for each neighboring edgelet that can be connected to the edgelet at the position in the two-dimensional array, a corresponding link is stored in association with the edgelet.